

REMARKS

I. Status of Claims

Claims 13-34 are currently pending. Claims 13, 23, 33, and 34 are the only independent claims. Claim 18 is currently amended to correct a minor typographical error.

Claims 13-34 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement.

Claims 13-16, 23, and 32-34 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,948,311 (the English-language equivalent of PCT Publication No. WO 02/38932, hereinafter “Harndorf”).

Claims 17, 20, 24, and 27 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Harndorf in view of Tashiro et al. (US 6,622,480) (“Tashiro”).

The Applicant respectfully requests reconsideration of these rejections in view of the following remarks.

II. Remarks Regarding the Rejections Under § 112

Section 112, first paragraph, prohibits the adding of subject matter to the claims that does not find support in the specification (including the drawings and abstract). The test for sufficiency of support is whether the specification “reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.” *Ralston Purina Co v Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575 (Fed. Cir. 1985) (quotations omitted).

The Office Action has rejected all the pending claims under § 112, first paragraph, for allegedly failing to comply with the written specification requirement. Specifically, the Office Action asserts that the recitation of an element relating to a mode change range being based on “a state in which a great part of the accumulated particulate matter is eliminated from the exhaust purification apparatus” in claims 13, 23, 33, and 34 does not have support in the specification or drawings. We note that this limitation was added in the June 12, 2009 Response to Office Action. Also, the Examiner did not reject this limitation under § 112 in the Office action of June 24, 2009.

The specification of the present application defines, in paragraph [0041], a function for an estimated amount of particular matter (PM) that has accumulated in an exhaust purification

apparatus (*e.g.*, a catalyst). Based on this estimated accumulation amount PM_{sm}, a determination is made whether to operate in one of several heating modes, which may be used to purge the accumulated PM from the catalyst, for example. This determination is made, in part, based on various reference points relating to the amount of PM in the catalyst. Examples include PM_{start}, corresponding to a value at which a change in the heating mode occurs (paragraph [0044]) and PM_{end}, corresponding to a value of PM at which another change in heating mode occurs (paragraph [0046]). Taken together, two or more of these reference values may define a range for a particular heating mode.

The specification also states in paragraph [0046] that the value for PM_{end} may be, for example, 0. This would correspond to a case in which all or nearly all of the PM in the catalyst is eliminated through the various heating modes. Accordingly, certain embodiments of the present invention define a range based on a reference point PM_{end} \approx 0, *i.e.* a state in which nearly all the PM is eliminated from the catalyst. At this point, now outside a heating mode range, a particular heating mode may no longer be necessary and will change.

This process is illustrated in Figure A below, which shows a graph of the estimated PM in an exhaust purification apparatus (*e.g.*, a catalyst) as a function of time. Here, a burn-up heating mode begins when the amount of PM in the catalyst reaches PM_{start}, at time t₀. As the heating continues, the amount of PM is reduced (as described in paragraph [0048]), eventually reaching PM_{end} at time t₃ when nearly all of the PM is eliminated. At this point, the heating mode is changed (*i.e.*, the burn-up mode stops, as described in paragraph [0056]). Thus, Figure A below, along with the accompanying descriptions in the specification, clearly conveys how a mode change is based on a state in which a great part (PM_{start}) of the accumulated particulate matter (PM_{sm}) is eliminated from the exhaust purification apparatus (PM_{start} – PM_{end} \approx PM_{start}). It is respectfully submitted that, one of ordinary skill in the art would, upon reading the specification as a whole, *clearly understand this as being part of the original disclosure of the invention.*

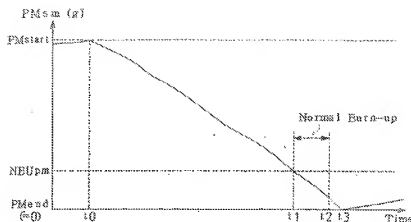


Figure A: FIG. 5 of the Present Application

Accordingly, paragraphs [0041], [0044] – [0046], [0048], and [0056], along with FIG. 5 of the specification support the limitation for a mode change range being based on “a state in which a great part of the accumulated particulate matter is eliminated from the exhaust purification apparatus.” For at least these reasons, the Applicant respectfully submits that the Office Action’s rejection of the claims under § 112 is improper and should be withdrawn.

Still further, with regard to the various reference points relating to the amount of PM in the catalyst, NBUpm may also be used as an example.

Specifically, paragraph [0051] states:

...normal burn-up start determination value NBUpm. The normal burn-up start determination value NBUpm is slightly greater than the end determination value PMend....

Also paragraph [0053] states:

...When the estimated accumulation amount PMsm is equal to or less than the normal burn-up start determination value NBUpm (S130: YES; time t1 in FIG. 5)...the ECU 70 starts the normal burn-up for intermittently adding fuel from the adding valve 68 to the exhaust during fuel addition process (FIG. 4)... (emphasis added)

In addition, paragraph [0091] states:

The range of the estimated accumulation amount PMsm under the special burn-up start determination value SBUpm and the range of the estimated accumulation amount PMsm under the normal burn-up start determination value *NBUpm* are respectively equivalent to the mode change range... the range of the estimated accumulation amount PMsm under the normal burn-up start determination value *NBUpm* is equivalent to the second mode change range. (emphasis added)

Thus, in light of the above passages, it is respectfully submitted that, one of ordinary skill in the art would also understand that the second mode change range, which is the range between NBUpm and PMend, corresponds to a state in which a great part of PM is eliminated. Thus, for also these reasons, the Applicant respectfully submits that the Office Action's rejection of the claims under § 112 is improper and should be withdrawn.

III. Remarks Regarding the Rejection of Claims 13, 23, 33, and 34 Under § 102(b)

The Office Action contends that Harndorf anticipates the independent claims of the present application. We note that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). This requirement holds true even in a case where the claims include alleged new matter. Even in such cases, "[t]he examiner should still consider the subject matter added to the claim in making rejections based on prior art since the new matter rejection may be overcome." Manual of Patent Examining Procedure (MPEP) at § 2163.06(I).

However, the Office Action has not addressed each and every element of the claims. Instead, the Office Action "assumes that applicant will correct and delete the new matter issues" and decides to "examine the previously presented subject matter [without the limitation discussed above] in this Office Action." (Office Action at 3.) Therefore, in failing to comply with *Verdegaal Bros.* and the MPEP, the Examiner's rejections under § 102(b) are improper.

Even if the Examiner had considered every limitation of the claims, however, he would not find all of them in Harndorf. The Examiner himself seems to have agreed with this point. In an Examiner interview on September 1, 2009, the Examiner and the Applicant's representative

reached an agreement that the arguments distinguishing the claims over the prior art were persuasive, and that the claims were allowable over the prior art. (*See* Interview Summary mailed Sep. 8, 2009.)¹ Accordingly, because the Examiner failed to consider every element of the claims and because every element of the claims is not found in Harndorf, the § 102(b) rejections are improper and should be withdrawn.

Based on the foregoing, the Applicant respectfully submits that claims 13-34 are patentable over the cited reference and in condition for allowance.

IV. Conclusion

In light of the above discussion, the Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance. The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

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¹ Although the summary does not indicate that Harndorf was specifically discussed during the interview, the Examiner withdrew his rejection based on Harndorf by entry of the June 12, 2009 Response to Office Action, which added the limitation discussed above. While not dispositive, this suggests that the Examiner feels the added limitation(s) has/have overcome the prior art used in the previous rejection.